



## Control Center for NASA's Advanced X-Ray Telescope Opens

by Joy Carter

NASA Administrator Daniel Goldin on Friday officially opened the control center for NASA's next great observatory, the Marshall Center-managed Advanced X-ray Astrophysics Facility, at the Smithsonian Astrophysical Observatory in Cambridge, Mass.

Participating in the opening ceremony from Marshall were Deputy Center Director Carolyn Griner and Observatory Projects Office Manager Fred Wojtalik.

The control center will manage the mission of NASA's most powerful orbiting X-ray telescope and provide science data to the Advanced X-ray Astrophysics Facility Science Center at the Smithsonian Observatory. From the control center, flight engineers will control the spacecraft, transmitting instructions, and receiving and processing the data it relays to Earth.

The Advanced X-ray Astrophysics Facility is scheduled for launch aboard the Space Shuttle in August 1998. In orbit, it will obtain never-before-seen images of highly energized X-ray sources — such as neutron stars, black holes, debris from exploding stars, quasars, centers of galaxies and galaxy clusters.

The Marshall Center manages the Advanced X-ray Astrophysics Facility program for NASA.

## AIAA Conference at VBC Next Week Free To NASA Employees

The American Institute of Aeronautics and Astronautics will host its 1997 Defense and Space Programs Conference and Exhibit Sept. 23-25 at the Von Braun Center. The conference, focusing on the theme "Critical Defense and Space Programs for the Future," will include presentations by NASA program directors

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*Fred Wojtalik, manager of Marshall's Observatory Projects Office, speaks during the dedication ceremony for the Advanced X-ray Astrophysics Facility Operations Control Center at the Smithsonian Astrophysical Observatory in Cambridge, Mass. Seated is NASA Administrator Dan Goldin. Photo by Dennis Keim*

## Atlantis Set for Seventh Flight to Mir, Marshall-Managed Experiments Aboard

Space Shuttle Program managers last week unanimously approved plans for a Sept. 25 launch of the seventh Shuttle mission to rendezvous and dock with Russia's Mir Space Station to deliver supplies and return Mike Foale from the outpost following his four-month stay.

Astronaut Dave Wolf has completed training and is scheduled to replace Michael Foale for a four-month stay on Mir to continue the permanent U.S. presence on the station that began with Shannon Lucid on the STS-76 mission in 1996.

STS-86 will also feature microgravity payloads sponsored by the Microgravity Research Program at Marshall Center: two protein growth experiments, including one provided by the Canadian Space Agency, managed by the Biotechnology Research program at Marshall, one cell tissue

biotechnology experiment led by the Johnson Space Center and one fluids physics experiment led by the Lewis Research Center. Also, the crew will continue a Canadian-provided materials science experiment, already placed aboard Mir on an earlier flight.

Spacecraft risk mitigation is the subject of another Marshall-managed STS-86 research project. A portable device to measure the long-term solar effects of the space environment on exterior spacecraft materials will be carried to the Mir and used during a December spacewalk. The project, sponsored by the Space Environments and Effects program at Marshall Center, is aimed at developing research data for use on the International Space Station.

The launch window opens at 9:34 p.m. CDT and closes about 7 minutes later.

# Microgravity Program Successfully Launches and Recovers Sounding-Rocket Combustion Experiments

by Bob Thompson

Two microgravity research payloads were successfully launched aboard Black Brant XII sounding rockets Friday, completing one investigation and continuing another sponsored by the Microgravity Research Program at Marshall Center.

The Friday flights, launched within 30 minutes of each other at White Sands Missile Range in New Mexico, are a continuation of the first series of sounding-rocket-based, microgravity-combustion research ever accomplished.

Aboard the two rockets launched Friday were investigations known as the Spread Across Liquids experiment and the Diffusive and Radiative Transport in Fires experiment, managed by the NASA Lewis Research Center in Cleveland, Ohio. Both were successfully recovered after their up-and-down parabolic flights of less than 30 minutes to altitudes between 30 and 100 miles above the Earth.

These flights provided just over five minutes of near weightlessness in which the microgravity experiments could perform. In the coming weeks, further hardware and scientific analysis will be conducted on the video and data files recovered from the rockets' parachute-recovered payloads.

"The success of the two launches

confirms our plans to fly more microgravity science experiments aboard suborbital rockets," explained Microgravity Research Program manager Joel Kearns of Marshall Center. "In the future, we'll take more advantage of these vehicles and include flights of experiments such as biotechnology and materials science experiments that are managed here at Marshall, as well as fundamental physics experiments designed by the Jet Propulsion Laboratory."

This was the fourth and final flight of the Diffusive and Radiative Fire experiment. Its objective is to increase the fundamental understanding of the mechanisms that cause flames to burn over solid fuels in a reduced-gravity environment. The experiment may lead to improved fire safety in space and on Earth.

The principal investigator for the experiment is Dr. R. A. Altenkirch, dean of engineering and architecture at Washington State University in Pullman, Wash.

The Spread Across Liquids experiment studies the burning of liquid fuels in microgravity. Investigators are excited over the preliminary flight results because they were able to observe a vortex forming in the gas phase of the fuel, a phenomena which to this point had only been

theorized. The understanding of the liquid fuel burning experiment may also lead to improved fire safety in space and on Earth. This was the experiment's fourth flight. An additional four flights are planned over the next four years.

The principal investigator for the liquid gas experiment is Dr. Howard Ross of Lewis Research.

Sounding rockets are of relatively low cost and a payload can be developed in as quickly as six months. These rockets provide a reasonably economical means of conducting both scientific studies and engineering tests of instruments and devices used on satellites and other spacecraft prior to their use in more expensive activities. Because of their low cost and short mission lead time, the rockets have proven to be valuable tools for students conducting graduate work in scientific fields.

Sounding rockets take their name from the nautical term "to sound," which means to take measurements. NASA launches an average of 30 sounding rockets each year with a success rate of about 98 percent.

The Marshall Center is NASA's lead center for the Microgravity Research Program and manages: combustion

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## Tenth Annual Von Braun Exploration Forum Set for Oct. 10

The 10th annual Von Braun Exploration Forum will be held Friday, Oct. 10, at the Von Braun Center concert hall. This year's program is centered on the theme "Chroniclers of Exploration" and will examine the important role that storytellers play in developing the public's understanding of the exploration experience through the news media, movies, music and poetry.

Included among the special guests will be Jim Hartz, formerly of the NBC-TV show "Today."

Hartz, along with Marshall Associate Director Dr. Rick Chappell, have been working on a study of how the media report science and technology in America. Chappell is currently on loan to Vanderbilt University as a visiting professional scholar.

"The media play a very critical role in communicating the results of exploration to the public," said Chappell. "This role

must be carried out in an effective manner."

The evening will begin at 6 p.m. with a private reception hosted by the National Space Club and Comcast Cablevision of Huntsville. The Forum starts at 7 p.m. and is followed by a formal black-tie dinner and music by the Jimmy Church band.

The Forum is sponsored by the Marshall Center, Discovery Communications, the University of Alabama in Huntsville, the National Space Society, the Association of Space Explorers, and the U.S. Space and Rocket Center. It will be open to the public at no charge and tickets are not required this year. However, tickets for the Von Braun Memorial Dinner and Dance, sponsored by the National Space Club, may be purchased by calling 890-6811. Those tickets will provide entry for the reception, dinner and dance.



# Center Employees Donate Skills, Time to Community Service

Employees from throughout the Marshall Center — including the center's director — grabbed hammers, paint brushes, needles and thread Saturday, fanning out into local neighborhoods to build, patch up and fix up during Marshall's Community Service Day.

It was a day for Marshall employees to witness the Combined Federal Campaign (CFC) at work by joining co-workers in hands-on projects at various area sites.

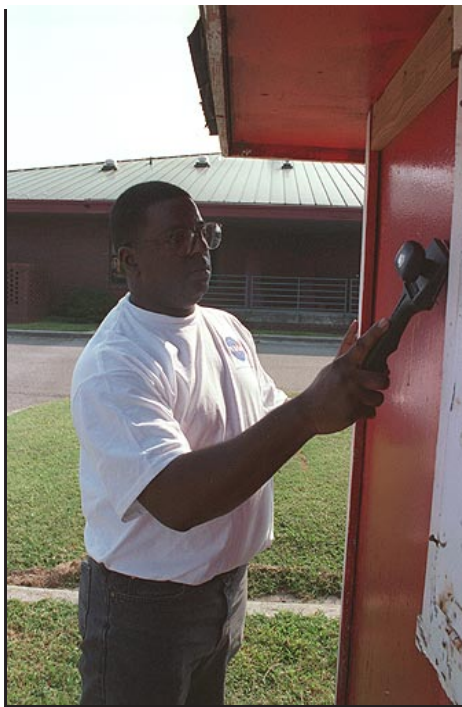
Marshall employees have a long history of financial giving to the CFC. Community Service Day gives them the opportunity to participate personally and physically.

"Community Service Day '97 was a big success," said coordinator Jeff Hamilton. "The weather cooperated and everyone had a great time participating in the work of CFC."

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Marshall Center Director Dr. Wayne Littles (center), his wife Bebe, volunteer Charlie Gaines and other Marshall Center volunteers work to build a handicap access ramp for the Care Assurance System for the Aging and Homebound (CASA).



Volunteer Melvin Scruggs works on facility maintenance for Christmas Charities.



Lou Nosenzo and Rene McBrayer spruce up a building at Christmas Charities.



Stephanie Crutcher lends hand in the ramp building effort.

**Photos by Dennis Olive and Danny Reeves**



Shelvie Miller, left, and Alicia Beam find plenty to do at Christmas Charities.



Habitat for Humanity's Building Blitz was beehive of volunteer activity.



# Marshall Center Employees to be Honored at STS-86 Launch

These 18 Marshall employees are being honored with a trip to the launch of STS-86 at the Kennedy Space Center for their dedication to space flight as part of NASA's Space Flight Awareness program.

Photos by Dennis Olive and Terry Leibold



Andy Braxton, CR55



Omana Cawthon, BR01



C. S. Crowell, EB14



Suzy Hartman, JA51



Jack Housley, SA45



Linda Jeter, MG21



Sherry Landers, EM31



Kenneth McCoy, ED63



Janet Mick, DE01



David Morgan, GP40



Chris Rupp, PS02



Sharon Scroggins, AE01



Videra Sims, EO61



Richard Stone, EL61



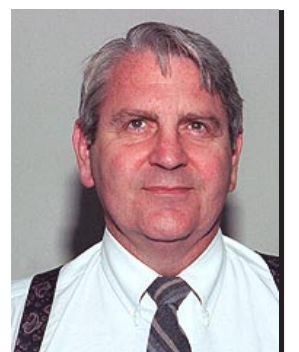
Sylvia Thomas, CM01



Vicki Wampler, TA31



Tommy Watts, BD01



James Zwiener, EH12

## Combined Federal Campaign

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Over 60 Marshall Center employees and family members turned out to help build a handicap access ramp and paint two other ramps for CASA; clean the fascia of the Boy Scouts building in preparation for painting; work at Christmas Charities; do minor repairs for Hope Place; and participate in the Habitat for Humanities Blitz Build.

Meanwhile, the CFC kickoff is scheduled for Sept. 29 and will feature, as keynote speaker, the founder and president of Habitat for Humanity International, Millard Fuller.

The Marshall Center's 1997 CFC bus tours to recipient agencies continues with two buses (A and B) departing from Building 4610 at 8:15 a.m., and Building 4203 (north loop) at 8:30 a.m. on Sept. 22, 23, 24, and 25. On Sept. 18, one bus will visit sites in Decatur. The tour schedule is:

**Sept. 18 Decatur Tour** —Tenn. Valley Rehab Center, Limestone/Morgan Counties

**Sept. 22 Bus A** — Food Bank of North Ala., and American Cancer Society; **Bus B** — YMCA, North and South side

**Sept. 23 Bus A** — Family Services Center and Girls Incorporated; **Bus B** — Association for Retarded Citizens and American Red Cross

**Sept. 24 Bus A** — American Cancer Society and Christmas Charities; **Bus B** — YMCA, North and South side

**Sept. 25 Bus A** — Hope Place and Arts Council

## Marshall Center to Celebrate Hispanic Month Sept. 25

The Marshall Center will celebrate National Hispanic Month with a lunch festival on Sept. 25 from 11 a.m. to 12:30 p.m. in the courtyard of Building 4200.

Music will be provided by the group Latin Rhythms and a Mexican plate lunch may be purchased from Charlie's grill in the basement of Building 4200.

National Hispanic Month is observed from Sept. 15 to Oct. 15.

### Obituaries

**James Morrison, 81**, Huntsville, died Aug. 29. He retired from Marshall in 1977 where he worked as a contract specialist.

**Estelle Napier, 72**, Huntsville, died Sept. 1. She retired from Marshall in 1974 where she worked as a general supply specialist. She is survived by her spouse Thomas Napier.

**Horace Sanders, 80**, Flintville, Tenn., died Aug. 27. He retired from Marshall in 1968 where he worked as a metallic processing foreman.

**Ernest Seiler, 84**, Madison, died Sept. 5. An original rocket team member, he retired from Marshall in 1971 where he worked in the Astrionics laboratory.

## Marshall Center Lunch-N-Learn Seminar Scheduled for Sept. 18

The Marshall Center's Employee Assistance Program will present a Lunch-N-Learn Seminar on Alzheimer's Disease Sept. 18, from noon to 12:45 p.m., in Morris Auditorium, Building 4200.

Kim Holbrook, executive director of the North Alabama Chapter of the Alzheimer's Association, will be guest speaker.

Holbrook is also a Dementia Education Trainer for the State of Alabama's Bureau of Geriatric Psychiatry, working closely with families who are struggling with the disease. Her presentation will cover such areas as overview of the symptoms and behaviors; the services available; an open discussion regarding caregiving; and the impact of the disease on the primary caregiver, family, and friends.

All interested Marshall employees, contractors and family members are invited to attend.

## AIAA Conference

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and U.S. military leaders on a range of challenges and opportunities facing space programs.

Marshall civil service employees will be able to attend the sessions without charge by showing their badge at the registration desk. More information about the conference is available on the worldwide web at "<http://www.aiaa.org>".

The conference will include keynote addresses by leading military and civilian space program officials. Among them will be Marshall Center Director Wayne Littles, who will deliver a keynote address during the Wednesday morning session, discussing "NASA's Critical Programs for the Future."

Plenary and technical sessions during the conference will explore a wide spectrum of topics, again, covering specialties from both the military and civilian space arenas. Several of the sessions will be chaired by Marshall employees, including a Wednesday morning plenary on "Low Cost Access to Space," chaired by Littles. Marshall personnel will also chair technical sessions in the fields of space transportation and transportation technologies, microgravity science and applications, space economics and microgravity space product development. In addition, dozens of individual presentations will cover developments and accomplishments by the center, or affecting Marshall programs and activities.

## Microgravity Research

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science and fluid physics research through the Lewis Research Center; fundamental physics projects through the Jet Propulsion Laboratory in Pasadena, Calif.; and biotechnology and material science experiments through Marshall, including cell tissue research at the Johnson Space Center in Houston, Texas.



## Employee Ads

### Miscellaneous

- ★ Scuba equipment: 3000-80 tank, US Tech ABC vest, regulator depth/pressure, weightbelt \$495. 880-2290
- ★ Two box seat tickets to Hawks versus Celtics NBA game at VBCC, Oct. 11. \$70 each. 895-9520
- ★ 3 chest of drawers for basement or garage storage. \$15 each. 837-2386
- ★ Colt "38" detective special, nickel, unused \$295. 881-1718
- ★ Complete computer system, computer monitor, printer, 486DX-40Mhz, 20MB RAM, 210MB HD, 33.6K modem, CD-ROM, speakers, software \$500. 882-6446
- ★ NEC Silentwriter II laser printer HP Laserjet and Postscript compatible uses standard Canon compatible cartridges \$200. 881-6297
- ★ Antique upright piano, needs tuning \$250 o.b.o. 882-0567
- ★ Yamaha Clarinova CVP-50, 88-key keyboard, 22 AWM, voices full MIDI capability, 10-track performance memory \$1,295. 881-6297
- ★ John Deere weed trimmer \$75. 837-0085
- ★ Beagle puppies, males and females \$50 each. Call 539-9094 after 5 p.m.
- ★ Beanie babies and Disney babies for sale or trade \$8 and up. 971-2773
- ★ Fireplace insert, Ember Hearth, 30"Lx24"H, \$150; 1 1/2 cord firewood \$35; 2 wood racks \$15 each. 881-6572
- ★ Auburn vs. Central Florida and Auburn vs. Louisiana Tech, 2 tickets each. 722-9114
- ★ Two 8M EDO, 60ns SIMMs \$45 guaranteed; Juki 6100 daisywheel printer \$45. 721-0617
- ★ Longaberger 1997 Inaugural basket, including tie-on, \$60. Call 464-9014 after 5 p.m.
- ★ Stroller \$35; swing \$20; playpen \$25; gate \$25; walker \$10; and red wagon \$40. 776-9165
- ★ Grand Finale and Winning Connection by Daniel Moore, beautifully matted and framed \$250 each. 883-5114
- ★ Dining table, drop leaf, seats 8, 4 chairs \$500 o.b.o.; Yamaha woods, 1,3,5, graphite shaft, left handed \$60. 881-1949
- ★ 55 gallon aquarium w/tank top and lights, unused \$125; twin-sized mattress w/boxspring and frame \$75. 461-0915
- ★ Heavy metal bins, stack for storing, new \$25. Will sell for \$5 each. 232-8709
- ★ Bach professional trumpet \$225; DP stair master \$200 o.b.o.; wood clarinet \$250. 882-7084
- ★ 55 gallon aquarium \$50. Call 851-6014 after 6 p.m.
- ★ 1986 Catalina 22 sailboat, 3 sails, out board motor \$6,000. 721-1968
- ★ Oak dining room table, 8 chairs, china cabinet & hutch all for \$850. 883-8186
- ★ Cobra senior graphite shaft irons, 3-PW, GW, and SW, \$95. 881-1005

### Vehicles

- ★ 1992 Ford Taurus GL, auto/console, ABS, all power, 90K miles, dual air bags \$5,200. 880-9025
- ★ 1991 Cadillac Sedan Deville, white, blue leather, 73K miles. 852-6952
- ★ 1994 Mercury Grand Marquis LS, A/C, A/T, PL, PW, large trunk. 536-6748
- ★ 1993 BMW, 325i, 45K miles, 4-door, 5-spd, leather, one owner \$18,700. 883-2904
- ★ Ford Aerostar, 7 passenger, PS, PW, PL, running boards, roof rack, V-6 \$3,000. 586-3061
- ★ 1991 Nissan Sentra, 100K miles, air, PS, PB, tape, cruise, 35MPG \$4,200. 882-1833
- ★ 1988 Plymouth Grand Voyager, V-6 \$3,500. 881-1005
- ★ 1987 Ford Mustang, 4-cyl., 2-door \$2,500. 881-5397
- ★ 1992 Eagle Talon, gray, 5-speed, A/C, PW, PL, PD, cruise, spoiler, 114K miles \$5,200. 461-0915
- ★ 1979 Trans-Am \$2,000. 232-8709
- ★ 1994 Ford Ranger XLT, x-cab, 42K miles, 3.3L, V-6, green, A/C, PS/PB, cruise \$9,500. 852-3298

### Carpool

- ★ From Hartselle to building 4708. 544-1094 or 773-6427

## Center Announcements

- ★ **Auction of Government Surplus Property** — A local sealed bid sale of property will be held Sept. 26 at Bldg. 7405, Warehouse Rd., Redstone Arsenal. Inspection is Sept. 23-24 from 8 a.m. to 3 p.m. Bids must be submitted by 8 a.m. to 12 noon by Sept. 25. To view material for auction or for further information call E. Couch at 842-9474 or D. Davis at 842-2570 or visit the web site at: <http://www.drms.dla.mil/>.
- ★ **Senior/NASA Day** — The EEO Office is asking for NASA and alumni volunteers from A&M and Tuskegee to assist in giving the students and general public information about MSFC roles and missions. The event is scheduled for Nov. 8 at 1:30 p.m. For additional information contact Alice Sams at 4-0374 or Willie Love at 4-0088.
- ★ **Toastmasters** — Redstone Toastmasters International will meet every Tuesday at 6 p.m. in the Morrisons's Cafeteria in Madison Square Mall.
- ★ **Mars Ballroom Dance Club** — Tickets for the MARS Ballroom Dance Club formal dinner dance on Oct. 11 can be purchased from Tamara Landers (544-6818), Pat Sage (544-5427), Ed Ogozalek (837-1486), Linda Kinney (544-0563), and Bob William (544-3998). Reservation for a table of 8 can be made by calling Woody Bombara (650-0200).
- ★ **Retired Senior Volunteer Program** — The

- Huntsville/Madison County Senior Center will participate in "Make a Difference Day" on Oct. 27 from 7 a.m. to 6 p.m. at the Senior Center. Contact Darthy Barnett for more information.
- ★ **Stop Abuse** — Aware of waste, fraud or abuse? Telephonically contact the MSFC Office of Inspector General at 544-9188 or send complaints to Mail Stop M-DI. Confidentiality will be maintained.
- ★ **Big Spring Jam** — Three-day, discount tickets are available at the Marshall Exchange for \$15. The Sept. 26-28 festival will celebrate the South's musical and artistic heritage.
- ★ **American Express Cards** — The new American Express cards will be mailed at the end of September to employees who have government-issued cards expiring in October. For more information contact Tina Walker at 4-7291.
- ★ **Blood Drive** — The American Red Cross will be at Bldg. 4752 on Sept. 19 from 8 a.m. to 1:30 p.m. for the monthly Marshall Blood Drive visit. The following schedule should eliminate long waiting periods: A-B, 8 a.m.; C-E, 8:30 a.m.; F-H, 9 a.m.; I-L, 9:30 a.m.; M-P, 10 a.m.; Q-S, 10:30 a.m.; and T-Z, 11 a.m. Marshall employees who serve as blood donors without compensation will be authorized 4 hours of excused absence for this purpose. Contractor personnel must comply with the policy of their respective companies.
- ★ **Blue Cross Representative** — The federal representative for Blue Cross/Blue Shield will be at Marshall on Sept. 16, bldg. 4202, rm. 108 from 9 to 11 a.m.
- ★ **NASA Ski Week** — The 7th Annual NASA Ski Week will be hosted at Whistler-Blackcomb, January 24-31. All MSFC employees, on-site contractors, retirees, and dependents are eligible to participate. For information contact Tom Dollman at 544-6568 or by e-mail "tom.dollman@msfc.nasa.gov".
- ★ **MARS Golf Club** — This tournament will be the final event of the 1997 golfing season. It is scheduled for Sept. 27 at Deer Run in Moulton, AL. The format for the tournament will be 2-man best ball and is open to all MSFC employees and retirees. The tournament will be flighted based on handicaps and you select your own partner. Entries must be received by 12 noon on Sept. 19 and the entry fee is \$4. Green fees will be paid at the course. The entry contacts are: Lee Foster (544-1589), Joey Butler (544-3808) and Roger Harwell (544-2684). For more information call Phil McKinnon at 544-0597

## Job Opportunities

**CPP 97-122-JB, General Supply Specialist, GS-2001-5, Human Resources & Administrative Support Office, Management Operations Office, Property Management Division. Closes September 19.**

# MARSHALL STAR

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